

-- REMARKS --

The present Amendment replies to a Second Non-Final Office Action dated October 22, 2002. Claims 1-20 as originally filed are currently pending in the present Application. The pending allowability of claims 6 and 15 is noted. Independent claims 1, 10, 19, and 20 have been amended herein whereby no new matter was introduced. Attached hereto is a marked-up version of the changes made to claims 1, 10, 19, and 20 by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made**".

In the Second Non-Final Office Action, Examiner Gemmel rejected pending claims 1-5, 7-14, and 16-20 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,069,938 to *Chornenky et al.* (hereinafter the "*Chornenky Patent*"). Claims 6 and 15 were objected to as being dependent upon a rejected base claim, however, they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Applicant has thoroughly considered the Examiner's remarks concerning the patentability of claims 1-5, 7-14, and 16-20 over the *Chornenky Patent*. The Applicant also thoroughly understands the specifics of *Chornenky Patent*, to which he is the Inventor.

Regarding independent claims 1, 10, 19, and 20, the Applicant has amended said claims to more particularly point out and distinctly claim the invention. The amended claims 1, 10, 19, and 20 now include the limitations of increasing and decreasing an applied voltage whereby actual dose rate is matched to a desired dose rate. The limitation now reads that the applied voltage is increased when the actual dose rate is less than the predetermined dose rate, and the applied voltage is decreased when the actual dose rate is greater than the predetermined dose rate.

The devices and methods of the *Chornenky Patent* do not teach or suggest these limitations. In fact, the *Chornenky Patent* teaches away from these limitations wherein the actual x-ray dose rate is matched to the desired dose rate by pulsing the voltage to discrete levels (FIG. 2 of the *Chornenky Patent*). When the desired delivery dose has been reached, the pulse voltage source is discontinued (column 7, lines 31-41 of the *Chornenky Patent*). The x-rays are generated from the discrete voltage pulses until a predetermined charge has passed through an emitter and the actual dose rate matches the predetermined dose rate. This is fundamentally different from the teachings of the present Invention wherein the actual dose rate is matched to the predetermined dose rate by increasing and decreasing the voltage, versus application of discrete voltage pulses.

In the *Chornenky Patent*, the applied voltage is switched up and down to discrete levels and the dose rate is controlled by varying voltage pulse width. Switching voltage power up and down in this manner may not be desirable from a manufacturing and cost viewpoint. Alternatively, matching the actual dose rate through voltage increases/decreases as described in the present Invention overcomes some of the disadvantages of the *Chornenky Patent*.

There is nothing in the *Chornenky Patent* to teach or suggest matching of the actual dose rate through voltage increase and decrease. As such, one of ordinary skill in the art would not be inclined to achieve dose rate matching as taught in the present invention. Therefore, the systems, method, and computer usable medium of the present Application are patentable over the teachings of the *Chornenky Patent*. Withdrawal of the rejection of independent claims 1, 10, 19 and 20 under 35 U.S.C. §103(a) over the *Chornenky Patent* is therefore respectfully requested. The Applicants respectfully request the allowance of the amended claims 1, 10, 19, and 20 over the *Chornenky Patent*.

Regarding claims 2-9 and 11-18, said claims depend from independent claims 1 and 10 respectively. Therefore, dependent claims 2-9 and 11-18 include all of the elements and limitations of independent claims 1 and 10. It is therefore respectfully submitted by the Applicant that dependent claims 2-9 and 11-18 are allowable over the *Chornenky Patent* for at least the same reasons as set forth above with respect to independent claims 1 and 10. Withdrawal of the rejection of dependent claims 2-9 and 11-18 under 35 U.S.C. §103(a) over the *Chornenky Patent* is therefore respectfully requested. Allowance of dependent claims 2-9 and 11-18 is respectfully requested.

SUMMARY

Examiner Gemmell's 35 U.S.C. § 103(a) rejection has been obviated by the above remarks corresponding to claims 1-20. The Applicant respectfully submits that claims 1-20 fully satisfy the requirements of 35 U.S.C. §§ 102, 103 and 112 and are in a condition for allowance. In view of the foregoing remarks, favorable consideration and passage to issue of the present application are respectfully requested.


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Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 1, 10, 19, and 20 have been amended as follows:

1. (Amended) A system for emitting x-rays comprising:
 - an x-ray emitter;
 - a controller operably connected to the x-ray emitter;
 - a current sensor operably connected to the controller; and
 - a voltage sensor operably connected to the controller; wherein the controller determines an actual dose rate based on a received current sensor signal and a received voltage sensor signal and adjusts an applied [supplied] voltage to allow the actual dose rate to match a predetermined dose rate; wherein the applied voltage is increased when the actual dose rate is less than the predetermined dose rate, and the applied voltage is decreased when the actual dose rate is greater than the predetermined dose rate.

10. (Amended) A method of operating a device for emitting x-rays comprising:

applying a voltage from a voltage source to the device;
measuring current and voltage within the device;
determining an actual dose rate based on the measured current and

voltage;

comparing a desired dose rate to the actual dose rate;

[adjusting the applied voltage; and]

[matching the actual dose rate to the desired dose rate]

increasing the applied voltage when the actual dose rate is less than the predetermined dose rate; and

decreasing the applied voltage when the actual dose rate is greater than the predetermined dose rate.

19. (Amended) A computer usable medium storing a program comprising:
computer readable code for determining an actual dose rate based on [the]
a measured current and voltage;

computer readable code for comparing a desired dose rate to the actual
dose rate;

[computer readable code for adjusting the applied voltage; and]

[computer readable code for matching the actual dose rate to the desired
dose rate]

computer readable code for increasing an applied voltage when the actual
dose rate is less than the predetermined dose rate; and

computer readable code for decreasing an applied voltage when the actual
dose rate is greater than the predetermined dose rate.

20. (Amended) A system for emitting x-rays comprising:
means for measuring current and voltage;
means for determining an actual dose rate based on a measured current
and voltage;
means for comparing a desired dose rate to the actual dose rate; and
[means for adjusting the applied voltage; and]
means for matching the actual dose rate to the desired dose rate by
increasing and decreasing an applied voltage.